

Code availability

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An abbreviated version of this protocol was published in eLIFE in Aug 2018

A quantitative approach for analyzing the spatio-temporal distribution of 3D intracellular events in fluorescence microscopy

DOI: 10.7554/eLife.32311

Detailed protocol

Spatial distribution analysis:

- 1) Extract salient spatial information from images via segmentation, particle tracking, ...
- 2) Use QuantEv plugin (QuantEv-Densities mode) to extract spatial distribution from different conditions (different genotypes, chemical perturbation, ...). These spatial distributions can be visualized via spreadsheet software
- 3) Use QuantEv plugin (QuantEv-Test mode) to statistically compare the different conditions

Analysis of tracking features with respect to localization:

- 1) Import particle trajectories extracted from an image sequence in Icy's TrackManager (possibility to use particle tracker directly in Icy)
- 2) Use QuantEv TrackProcessor to extract the evolution of a given tracking feature (confinement ratio, displacement distance, total path length or lifetime) with respect to localization from different conditions
- 3) Use QuantEv plugin (QuantEv-Test mode) to statistically compare the different conditions

Spatial uniformity analysis:

- 1) Extract salient spatial information from images via segmentation, particle tracking, ...
- 2) Use QuantEv plugin (QuantEv-Uniformity mode) to extract the point giving the most uniform spatial distribution potentially corresponding to a spatial organization hub, emitter, attractor, ...

A tutorial for the Icy plugin is available at <http://serpico.rennes.inria.fr/lib/exe/fetch.phpmedia=software:quantev:tutorialforicy.pdf>.

Related files

QuantEvProtocol.pdf



How to cite: (Readers should cite both the Bio-protocol preprint and the original research article where this protocol was used)

1. Kervrann, C. (2019). Code availability. Bio-protocol Preprint. [bio-protocol.org/prep79](https://doi.org/10.21956/bio-protocol.d79).
2. Pécot, T., Zengzhen, L., Boulanger, J., Salamero, J. and Kervrann, C. (2018). A quantitative approach for analyzing the spatio-temporal distribution of 3D intracellular events in fluorescence microscopy. eLIFE. DOI: [10.7554/eLife.32311](https://doi.org/10.7554/eLife.32311)

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